Math 2 Classwork 22

Warm Up

1 **Multiplication table by 0, 1, 2, 3, 4, 5 and 10.** Solve as many as you can in **3 minutes.**

Independent work

3 × 0 =	3 × 5 =	4 × 5 =
10 × 20 =	4 × 30 =	40 × 4 =
20 × 3 =	6 × 20 =	3 × 40 =
5 × 10 =	4 × 10 =	10 × 50 =
20 × 7 =	20 × 9 =	20 × 6 =
10 × 100 =	5 × 5 =	5 × 3 =
4 × 4 =	3 × 3 =	2 × 2 =

2 Which piece fits in the empty place?

(A)

(B)

(C)

(D)

(E)

3 13 children are playing hide and seek. One of them is the ”seeker”. After a while 9 children have been found. How many children are still hiding?

(A) 3 (B) 4 (C) 5 (D) 9 (E) 22

Homework Review

4 What numbers can you make with 1, 2, and 3, using operations of addition, subtraction, and multiplication, as well as parentheses?

For example, here is the way to make 9: 3 × (2 + 1) = 9 *and 7: 3 × 2 + 1 = 7*

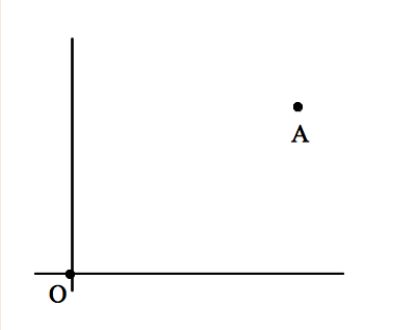
- Find a way to make 1.
- Find a way to make 3.
- Find a way to make 4.
- Find 3 different ways to make 5

Can you make 10?

New Material

If we want to indicate the position of a point on the plane, one number is no longer enough. Suppose we mark a point on the plane and call it point O.

How can you describe the position of a point A relative to the point O?
Take a look at the picture below and explain where A is relative to O.
If your description is in words, can you use just one number to specify where A is in relation to O?



Coordinates on a plane

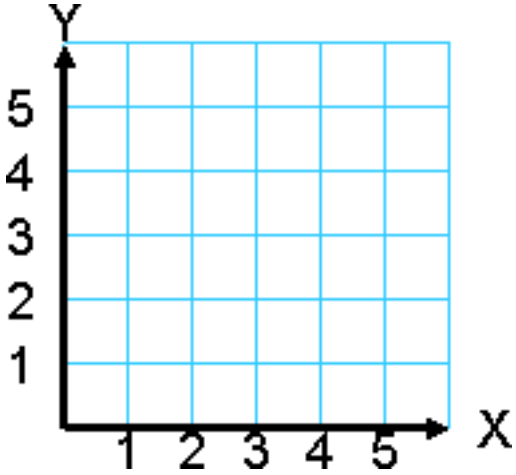
A coordinate system on the plane is a way to describe position of any point on the plane relative to a fixed point (the center of coordinate system).
A coordinate system on the plane has two number lines. Those lines are perpendicular to each other.
We usually call horizontal number line "x-axis" and vertical number line "y-axis".
The origin – point O has coordinates (0,0).

5

Mark point A on the coordinate system so that:

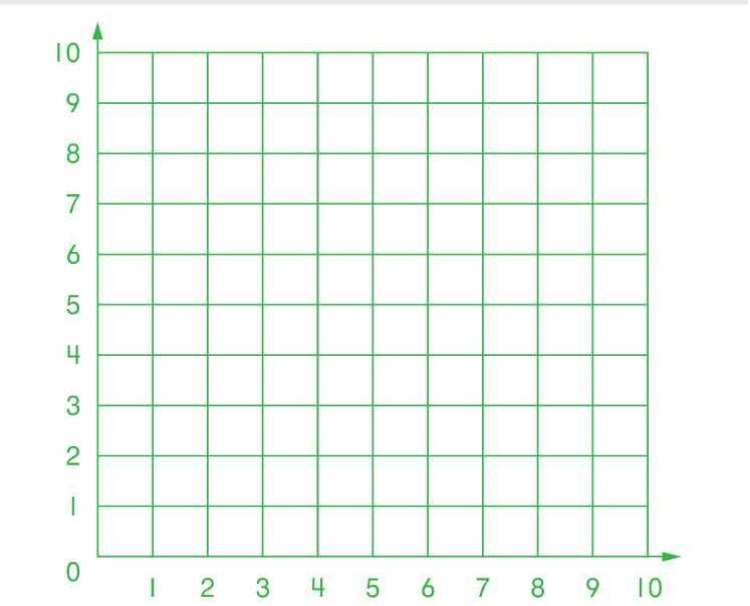
a) Point A lies on the x-axis;
b) Point A is at the mark 5 on the x-axis;

Mark point B on the coordinate system so that:
a) Point B lies on the y-axis;
b) Point B is at the mark 2 on the y-axis;



6 On the coordinate plane mark the points with the following coordinates:

A (1, 2) B (2, 2) C (3, 4) D (6, 7)



7 Find coordinates of points ***A***, ***B***, and ***C***.

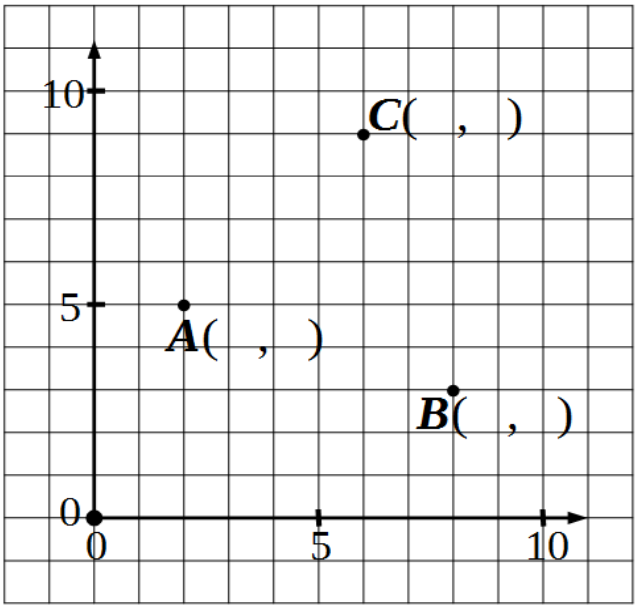
A (,)

B (,)

C (,)

Plot points:

D (3, 2)
E (11, 5)
F (4, 12)
G (7, 5)



REVIEW I

8 Compare using >, <, or =.

$254 - a \square 204 - a$ $m - 63 \square m - 36$ $c + d \square d + c$

$b - 287 \square b - 56$ $310 + n \square 305 + n$ $440 - k \square 540 - k$

9 Rewrite each problem using the associative property and find the answer.

$(10 \times 5) \times 8 =$ _____

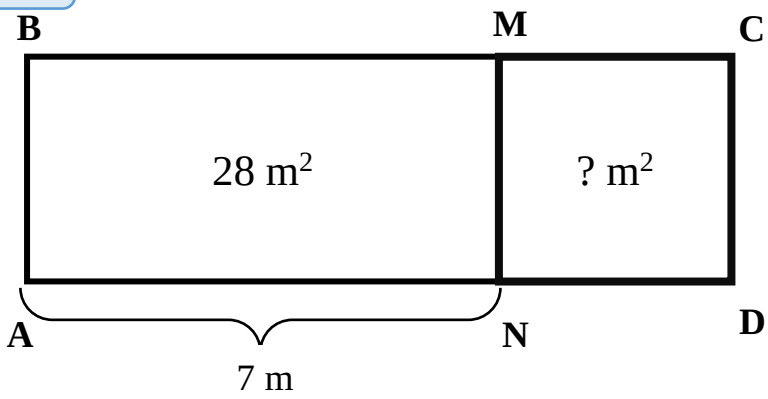
$(5 \times 11) \times 2 =$ _____

$5 \times (24 \times 2) =$ _____

10 Calculate:

$28 \times 5 =$ $67 \times 4 =$ $111 \times 5 =$

11 Find the area and the perimeter of square NMCD.

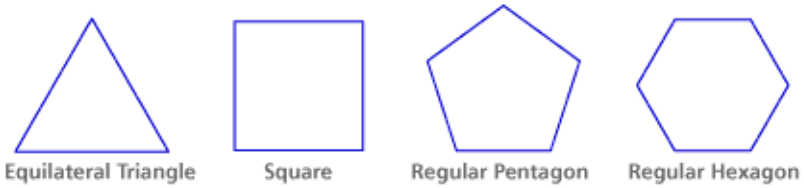


A = _____

P = _____

12 a) Each of these figures has rotation symmetry. Can you estimate the center of rotation and the angle of rotation?

b) Do the regular polygons have rotation symmetry? For each polygon, what are the center and angle of rotation?



Did you know …

The Cartesian Plane, also known as the **Coordinate Plane**, is named after the French mathematician René Descartes. He was born in La Haye, France on March 31, 1596. Descartes was taught at home up to the age of eight. At that point, he entered the Jesuit college of La Flèche, where he continued his schooling until graduating at the age of eighteen.

While at La Flèche, Descartes suffered health problems and because of this, his teachers allowed Descartes to stay in bed for most of the morning. Even though he missed almost all of his morning classes, he was still able to keep up with all of his studies. It has been rumored that Descartes' inspiration for the coordinate plane came about because of all the time he spent in bed. The story goes that one day when Descartes was in bed, he noticed a fly crawling around on the ceiling. He tried to think of ways to describe where the fly was located and realized that he could do so by describing the fly's position by its distance from each wall. Then he tried to relate the fly's position to a point, and, well, one thing leads to another, and voilà! He came up with the coordinate plane and Cartesian coordinates!

Cartesian coordinates are used to locate a point in space by giving its relative distance from perpendicular intersecting lines. These perpendicular intersecting lines for the two coordinate axes of the Cartesian (coordinate) plane. Any point, line, or figure can be precisely located by referencing these axes. The horizontal axis is called the **x-axis**, and the vertical axis is called the **y-axis**. The coordinate plane is divided into four quadrants (as pictured below).

In the system that Descartes created, a **coordinate pair** (or an ordered pair) describes the location of a point in the coordinate plane. The coordinate pair, in general, is (x, y). The first value is the x-coordinate, which describes where on the x-axis the point is located. The second value is the y-coordinate, which describes where on the y-axis the point is located. Using the Cartesian coordinate system, any point in the plane can be described using a pair of coordinates. A set of coordinates gives the location of a city, country, or ship at sea. Another application of ordered pairs is that computer graphic artists create figures and computer animations by referring to coordinates. **What else are ordered pairs used for in the real world?**